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Natural wavelet transformations of gravity data: Theory and applications

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Abstract

The possibilities of applying a wavelet class to the localization of anomalous gravity field sources are considered. A fast method for constructing density models of geological media on the basis of expansion of gravity anomalies in natural components is proposed. It is shown that, for natural analyzing 1-D and 2-D wavelets, parameters of a point source can be uniquely determined from the coordinates and amplitude of the related wavelet spectrum maximum of the gravity field. A simple method for determining the parameters of arbitrarily distributed point sources from the wavelet spectrum of their total gravity field is developed.